

## Patent Claims:

1. Process for layer-by-layer production of a three dimensional body, including the repeated succession of the steps
  - applying a layer of powder particles, by means of a dispensing device, upon a substrate
  - activation, in defined areas, of an adhesive present on the powder particles and/or in the powder particle layer
  - solidification of the activated adhesive and adhesion of powder particles within the layer and with the substrate thereby characterized,  
that the powder particle layer is subjected to ionized particles and thereupon brushed flat by an electrically insulated blade prior to activation of the adhesive.
2. Process for layer-by-layer production of a three dimensional body according to Claim 1, thereby characterized,  
that the powder particles during or immediately after leaving the dispensing device are subjected to ionized powder particles and/or freefall through a charged cloud of ionized particles (space charge, electric field).
3. Process according to Claim 1 or 2, thereby characterized,  
that the charge differential (static charge) on the powder particles is reduced by the ionized particles.

4. Process according to one of the preceding claims, thereby characterized, that the deposited layer, prior to flattening, is essentially free of powder particle agglomerates.
5. Process according to one of the preceding claims, thereby characterized, that at least one of the powder layers following flattening has a thickness of less than 100  $\mu\text{m}$ .
6. Process according to one of the preceding claims, thereby characterized, that the powder particles are coated with an activatable adhesive material.
7. Process according to Claim 6, thereby characterized, that the adhesive material is comprised of polymers, which are soluble in an organic solvent based binder liquid.
8. Process according to Claim 7, thereby characterized, that the adhesive material is activated in defined areas by a binder liquid.
9. Process according to Claim 8, thereby characterized, that the binder liquid is resolidified at least in part by influence of thermal radiation.
10. Process according to Claim 9, thereby characterized, that the amount of the binder liquid applied is sufficient only

for moistening or wetting to a depth of maximally 20 average powder particle diameters of the powder particles.

11. Process according to Claim 6, thereby characterized, that the adhesive is comprised of polymers which sinter or fuse upon irradiation with laser light.
12. Process according to Claim 11, thereby characterized, that the adhesive is fused or sintered in defined areas by laser radiation.
13. Device for layer-by-layer buildup of three dimensional bodies from adhered powder particles, including
  - a conveyor device (3) for applying powder particles (5)
  - a flattening device (8) for brushing flat an exposed powder particle layer
  - a binder or solvent emitting nozzle or a laser light source for activation of an adhesive present on the powder particles and/or in the powder particle layer, thereby characterized,  
that at least one ionizing device (6') is provided on the flattening device (8), which emits charged particles (7') on the applied powder particles.
14. Device according to Claim 13, thereby characterized, that at least one further ionizing device (6) is provided, which subjects the powder particles (5) to charged particles (7)

as they leave or directly after they leave the conveyor device (3).

15. Device according to Claim 13 or 14, thereby characterized, that the ionizing device (6, 6') is adapted to dissipate the electrical charge of the powder particles.
16. Device according to one of Claims 13 through 15, thereby characterized, that an electrically insulated blade (8) is provided, which brushes flat the powder particles applied upon the layer.
17. Device according to Claim 13 or 14, thereby characterized, that at least one ionizing device produces a cloud of ionized air (charged space), which is pushed ahead of the blade during the step of brushing flat.
18. Device according to one of Claims 13 through 17, thereby characterized, that a radiation device (11) is provided for thermal radiation for drying the powder particle layer.
19. Three dimensional body of adhered powder particle layers obtainable with a process according to one of Claims 1 through 12 and producable in a device according to one of Claims 13 through 18, thereby characterized, that the majority of the powder particle layers adhered to each other to form the body exhibit a thickness of less than 100  $\mu\text{m}$ .

20. Three dimensional body according to Claim 19, thereby characterized, that the thickness of the powder particle layers is substantially the average diameter of the individual powder particles.